PATENT COOPERATION TREATY

Translation internat

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

1		gent's file refer	rence	FOR FURTHER	ACTION	See Form PCT/IPEA/416					
International application No.			··-	International filing d	ate (day/month/year)	Priority date (day/month/year)					
PCT/DE2004/001328			1328	24.06.200)4	30.06.2003					
	international Patent Classification (IPC) or national classification and IPC										
		Ciassilica	non (IPC) of had	ional classification and							
Applicar	Applicant										
SLS MICRO TECHNOLOGY GMBH											
1.	 This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 										
2.	This R	EPORT consi	sts of a total of	7	sheets, includi	ing this cover sheet.					
3.	This re	eport is also ac	companied by A	ANNEXES, comprising							
	a. X	•			_						
	a.	•		to the International B		sheets, as follows:					
		she she				amended and are the basis for this report and/or Rule 70.16 and Section 607 of the Administrative					
	sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental										
	r	Bo:									
	Ь.	(sent to t	he International	Bureau only) a total of	f (indicate type and numl	ber of electronic carrier(s))					
						, containing a sequence listing and/or tables					
				r readable form only, strative Instructions).	as indicated in the Supp	lemental Box Relating to Sequence Listing (see					
4.	This re	eport contains	indications relat	ing to the following ite	ems:						
	\boxtimes	Box No. I	Basis of th	e report							
		Box No. II	Priority								
		Box No. III	Non-establ	ishment of opinion wit	h regard to novelty, inve	ntive step and industrial applicability					
		Box No. IV	Lack of un	ity of invention							
	\boxtimes	Box No. V		statement under Article ad explanations support	· · · · ·	velty, inventive step or industrial applicability;					
		Box No. VI	Certain do	cuments cited							
	Box No. VII Certain defects in the international application										
	\boxtimes	Box No. VII	I Certain ob	servations on the intern	ational application						
Date of submission of the demand Date of completion of this report											
		or ale dell			Same of conference of this report						
Name and mailing address of the IPEA/EP				·	Authorized officer						
Facsimil	e No				Telephone No.						
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Box	No. I	Basis of the report		
1.		regard to the language, this report is based on the internation ated under this item.	nal application in the language in	which it was filed, unless otherwise
		This report is based on translations from the original language which is the language of a translation furnished for the purport		<u> </u>
		international search (Rule 12.3 and 23.1(b))		
		publication of the international application (Rule 12.4)		
	*****	international preliminary examination (Rule 55.2 and/o	,	
2.	recei	regard to the elements of the international application, this iving Office in response to an invitation under Article 14 are report): the international application as originally filed/furnished		
		the description:		
		pages 1-13		as originally filed/furnished
		pages*	received by this Authority on	
		pages*	received by this Authority on	
	\boxtimes	the claims:		
		nos.		as originally filed/furnished
		nos.*	as amended (togethe	r with any statement) under Article 19
		nos.* 1-21	received by this Authority on	02.05.2005 with telefax
		nos.*		
	\boxtimes	the drawings:		
				as originally filed/furnished
		sheets*		
		sheets*	received by this Authority on	
		a sequence listing and/or any related table(s) - see Suppleme	ental Box Relating to Sequence L	isting.
3.	Ш	The amendments have resulted in the cancellation of:		
		the description, pages		
		the claims, nos.		
		the drawings, sheets/figs		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
4.		This report has been established as if (some of) the amend they have been considered to go beyond the disclosure as fil		
		the description, pages		
		the claims, nos.		
		the sequence listing (specify):		
		any table(s) related to sequence listing (specify):		
*	If ite	em 4 applies, some or all of those sheets may be marked "supe	erseded."	

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No. V	citations and expla	nt under Article 35(2) with regard to novelty, inventive step or industrial applicability mations supporting such statement	,
Statement			
Novelty (N)		Claims 1-21	
		Claims	
Inventi	ve step (IS)	Claims 1-21	
		Claims	
Industr	ial applicability (IA)	Claims 1-21	
		Claims	
Citations a	nd explanations (Rule 7	70.7)	
1.			
	report mak	es reference to the following documents:	
	<u>-</u>		
D1:	US 2003/1	19034 A1 (PAK YUKEUN EUGENE ET AL), 26	
		3 (2003-06-26)	
D10:	SHAOMING	HUANG: "Controllable 3D architectures of	
	aligned c	arbon nanotube array by multi-step	
	processes	", CHEMICAL PHYSICS LETTERS 374,	
	ELSEVIER,	Vol. 374, 4 June 2003 (2003-06-04),	
	pages 157	-163	
15	10		
		as not cited in the international search	
repor	τ)		
2.			
	nnlication	does not meet the requirements of PCT	
		nd 33(3) for novelty and inventive step	
		ng reasons:	
101 0	10110#1		
2.1			
The a	pplication	relates to a miniaturised device (claim	
		and/or enriching molecules and/or atoms,	
		aining carbon nanotubes or nanofibres as	

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

filling material inside a chamber which comprises an inlet and an outlet for the supply and discharge of a molecule or atom sample.

2.2

Document D1, which relates to a device of this type (cf. the abstract, as well as figures 1 and 3 of D1) is regarded as the closest prior art.

2.3

The subject matter of claim 1 differs from D1 in that the filling material is covered with a layer of amorphous carbon, thus forming the chamber. Although a closed chamber is implicit in D1, in certain circumstances, namely when the sample is supplied under pressure or in a vacuum (cf. page 3, column 1, lines 1-6 of D1), D1 contains no indication of the structure of such a chamber. The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

2.4

The present invention can therefore be considered to address the problem of providing a device which is specially easy to produce. This technical effect is achieved by the fact that the covering layer and the filling material can be produced in a single operation.

2.5

It is known that in certain circumstances a layer of amorphous carbon is produced as a by-product during the manufacture of carbon nanotubes (see, for example, document D10). However the prior art does not suggest the

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

idea of using this type of layer as a component for a device according to D1. The subject matter of claim 1 is therefore inventive (PCT Article 33(3)).

2.6

The same reasoning applies to independent claim 15. The subject matter of claim 15 therefore also involves an inventive step (PCT Article 33(3)).

2.7

Claims 2-13 are dependent on claim 1, and claims 16-21 are dependent on claim 15. They therefore also meet the requirements of PCT Article 33(2) and 33(3) for novelty and inventive step.

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					101/062004/001320					
Box No. VII	Certain defects in t	he international	application							
The following defects in the form or contents of the international application have been noted:										
1.										
Contra	ary to PCT	Rule 6.	3(b)(ii),	claims	1 and 15 are not					
restr	icted from	D1.								
2.										
D1 is	not cited	in the	description	on (PCT	Rule 5.1(a)(ii)).					

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Box No. VIII	Certain obse	ervatio	ns on the	interna	tional application	1					
The following the description	g observations on the	ne clari	ty of the	claims, d	lescription, and dr	awings or o	on the quest	ion whethe	rthe clai	ms are fully suppo	orted by
The	descript	ion	was	not	brought	into	line	with	the	claims	
(PC	Γ Article	6)	•								